

2010



Installation and Licensing Manual

REACTION DESIGN SOFTWARE

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For licensing information, please contact Reaction Design at (858) 550-1920 (USA) or licensing@ReactionDesign.com.

Technical Support:

Reaction Design provides an allotment of technical support to its Licensees free of charge. To request technical support, please include your license number along with any problem-specific information, including project input or output files, and any error messages pertaining to your question or problem. Requests may be directed in the following manner: E-mail: support@ReactionDesign.com, Fax: (858) 550-1925, Phone: (858) 550-1920. Additional technical support hours may also be purchased. Please contact Reaction Design for the hourly rates.

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1 Introduction



The information provided in this manual describes the Licensing and Installation procedures for Reaction Design products, including both CHEMKIN and CHEMKIN-PRO. Examples that apply to CHEMKIN-PRO but not to CHEMKIN are highlighted with a “CHEMKIN-PRO Only” tag plus a  icon in the margin.

The [CHEMKIN Installation and Licensing Manual](#) is designed to help users and system administrators install Reaction Design's license-utility software and to activate licenses associated with Reaction Design software.

Further information concerning the use and operation of any specific Reaction Design product can be found in the user manuals available with the product installation.

1.1 Supported Computer Platforms and Operating Systems

The specific platforms and compiler details supported for a given Reaction Design product vary, due to 3rd-party dependencies and the staggered timing of product releases. In general, however, Reaction Design's products are typically available for the x86 and x86_64 processors running Linux 2.6 core or running Windows XP and later. We develop on Red Hat Enterprise 4 and find SuSE generally compatible. Some recent 2.6 core systems will require compatibility libraries be installed for C or Fortran runtime libraries. The License Server platform does not need to be the same as that of client computers. [Table 1-1](#) lists the supported platforms where Reaction Design's License Server Utilities may be run.

Table 1-1 Supported License Server Platforms

<i>Manufacturer</i>	<i>Operating System(s)</i>	<i>Notes</i>
Linux (x86)	Red Hat Enterprise 4, 5 SuSE 10, 11	32-bit. Use linux9 installer.
Linux (x86_64)	Red Hat Enterprise 4, 5 SuSE 10, 11	64-bit. Use linuxx8664 installer.
PC-compatible (Win32)	• Windows Server 2003 or 2008 • Windows XP • Vista • Windows 7	Note: Installation location must not have Unicode characters in path.
Windows 64-bit (Win64)	• Windows Server 2003 or 2008 • Windows XP64 • Windows Vista 64-bit • Windows 7	Same note as 32-bit regarding Unicode



If you have a specific question about a platform that is not listed, please contact Reaction Design support for further clarification (see [Chapter 5](#) for contact information).

1.2 System Requirements

Before you start, take a minute to verify that you have the following requirements needed to install and run Reaction Design's products:

1. A suitable computer and operating system, as listed in [Table 1-1](#).
2. 350 Megabytes of hard disk space.
3. 1 GB of RAM (2 GB or more is recommended for 64-bit installations or Vista systems).

1.3 Overview of the Installation Process

Installation involves three basic steps:

1. Obtain and install a license file from Reaction Design for the product(s) that you have purchased.
2. Install the software after downloading from the web (or from a CD-ROM).
3. Test the license installation to make sure a license can be checked out.

Each of these steps is described in more detail in the following chapters. The instructions are divided according to platform. [Section 2.2](#) describes installation procedures for all Windows-based PCs, while [Section 2.3](#) describes installation procedures for all UNIX platforms (including Linux).



In general, the license manager and license daemons (`lmgrd` and `reaction`) corresponding to the most recent Reaction Design product installed should be used on the License Server. Such utilities are backwards compatible with older license files. In addition, the latest license files typically enable older versions of the software as well as the version purchased.

2 Windows Installation and Licensing

2.1 Running the Setup Program

You must have administrator privileges to install on any Windows 2003/XP/Vista/7 operating system. To install a Reaction Design (RD) product and licensing utilities on your Windows computer, perform the following steps:

1. Download the product installation (<product>_pc for 32-bit or <product>_win64 for 64-bit) and execute the downloaded installer.
2. The Welcome dialog introduces you to the Setup program. Click **Next** to continue.
3. The Software License Agreement dialog will display the license agreement. Click **Yes** to accept the standard license agreement terms.
4. *If you are installing CHEMKIN-CFD for FLUENT*, you must select the location of an existing FLUENT installation. The CHEMKIN-CFD for FLUENT binary files will be installed into this location.



An existing installation of FLUENT is required to install CHEMKIN-CFD for FLUENT.

5. Choose the Destination Location. This is the location on your hard disk where you would like to install the RD product. The default is **C:\Program Files\Reaction**, but you may select any drive or folder name using the **Browse** button. Once you have chosen the default folder, click **Next** to continue.



A subfolder will be created below the default **Destination Location** to contain the latest installation of <product>. A *licenses* folder will also be created or updated.



Note: The installation location must not have Unicode (such as Kanji) characters in the path because computational jobs run in the DOS shell environment do not fully support Unicode.

6. Choose the folder for your **Start > All Programs** menu. Modifying the settings here changes the way the short-cuts are organized in your **Programs** menu. Click **Next** to continue.
7. Some installations include an optional product named GraphViz. You may see an option for a graphing product named GraphViz¹. If you select **Yes** in this panel, the GraphViz installation will be run prior to the Reaction Design selected product installation. If GraphViz is already installed, you do not need to install it again.
8. At this point the Setup program will begin installing files on your computer's hard disk. After the files have been installed successfully, the setup dialog will ask you to reboot your computer. Choose **Yes** to allow the program to reboot, or **No** to reboot manually later.



The reboot step is necessary to set environment variables and a default license-file location in your system registry. The installed product and licensing may not operate correctly until your system is rebooted.



CHEMKIN-CFD for FLUENT users must specifically set the environment variable for the Reaction Design license server, **\$REACTION_LICENSE_FILE**. See [Section 3.2](#).

2.1.1

Automation of Windows Installation

Our Windows installer use the InstallShield scripting program. InstallShield supports the creation and use of "silent installation" files. The vendor of InstallShield is now named Flexera and they have a FAQ article about this:

<http://kb.flexerasoftware.com/selfservice/viewContent.do?externalID=Q101901>

1. <http://www.graphviz.org>

In short, you record your installation responses as follows into a ".iss" file. You can also record an uninstall response file. Then, you perform other installs using that ".iss" file to provide the responses. The install runs very quickly using this approach. The below example writes these ".iss" files to the **C:** location; you should select an appropriate location -- this can be a network drive.

Record files:

```
$ chemkin15101_win64_setup.exe /r /f1"C:\iss\chemkin_win64_setup.iss"
$ chemkin15101_win64_setup.exe /r /uninstall /
f1"C:\\chemkin_win64_uninstall.iss"
```

Perform silent installation using recorded response files.



Note that the second flag providing a log file is required.

```
$ chemkin15101_win64_setup.exe /s /f1"C:\iss\chemkion_win64_setup.iss" /
f2"C:\iss\chemkin_win64_setup.log"
$ chemkin15101_win64_setup.exe /s /uninstall /f1"C:\iss\chemkin_win64_uninstall.iss" /
f2"C:\iss\chemkin_win64_uninstall.log"
```

2.2 Licensing for a Windows System

This section provides instructions on how to obtain and install a Reaction Design license file for the Reaction Design product after you have purchased the software.



You must have a valid license key to access the software downloads on the Reaction Design website. The license will also be required to run the installed product.

2.2.1 Assumptions

We assume the following, for purposes of providing instructions on obtaining and installing a license on a Windows operating system:

- ✓ You have already installed the product on your computer.
- ✓ The default installation directory for Windows is **C:\Program Files\Reaction**. If you have installed in a different location, please make the necessary replacements in the instructions that follow.

2.2.2 Required Tasks

To activate your Reaction Design products.

1. Request a license from Reaction Design, providing information about your computer.
2. Install the license received from Reaction Design.

2.3 Requesting a License from Reaction Design

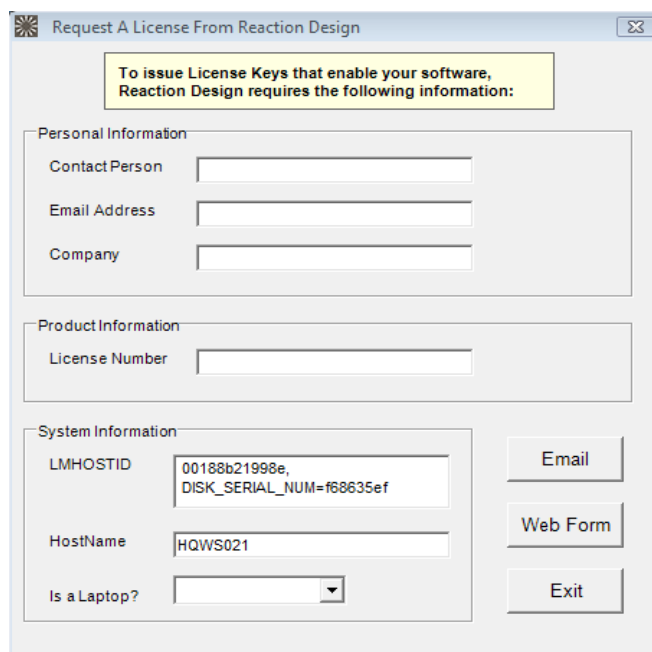
To obtain a license from Reaction Design, we require that you send us certain information about the computer on which you will be running the product. Here we provide detailed instructions for obtaining that information. If you have purchased a Network (floating) License, the following steps should be run on your Network License Server. If you have not yet installed a Reaction Design product, you can download the license utilities described in the following sections here:

http://www.reactiondesign.com/support/open/pub/license_utilities/114/

Licenses should be requested using Reaction Design's Request License Utility. A short-cut to this utility is installed in your Windows **Start > All Programs** menu. Follow the steps below to send your computer's identifying data to Reaction Design:

1. With your mouse, navigate to **Start > All Programs > Reaction Design > License Tools > Request A New Reaction Design License**. The Request License Utility should open a dialog, as shown in [Figure 2-1](#).

Figure 2-1 Request License Utility dialog, which is used to request license keys from Reaction Design



2. Fill in your **Personal Information**, **Company Name**, and **License Number** (located on your License Specifications Form). An example of the information required is shown in [Figure 2-1](#).

3. Choose one of the following:

- **Web Form.** This option will post the information gathered to Reaction Design via a web browser. The **Web Form** button will open a web page with your default web browser, as shown in [Figure 2-2](#).

Figure 2-2

Web form opened by Request License Utility when Web Form button is selected

Click Submit When Ready...	
NAME	Joe Sample
EMAIL	your-email@domain.com
COMPANY	Your Company
LICENSE NUMBER	1005
HOSTID	00188b21998e, DISK_SERIAL_NUM=f68635ef
COMPUTER NAME	HQWS021
Submit	

- **Email.** This option will create text that can be embedded into an email to Reaction Design. The **Email** button will open a text box as shown in [Figure 2-3](#). Copy and paste the contents of the text box into an email or use the **Save** button to save the text to a text file to send later.

Figure 2-3

Text box opened by Request License Utility when Email button is selected.

Information To Email

DO NOT MODIFY THIS REQUEST INFORMATION
=====

START

NAME = Joe Sample
EMAIL = your-email@domain.com
COMPANY = Your Company
LICENSE_NUMBER = 1005
HOSTID = 00188b21998e, DISK_SERIAL_NUM=f68635ef
COMPUTER_NAME = HQWS021
PLATFORM = Windows Vista (0)
END

Copy and paste information between START and END
into the body of your email program and send it to
licensing@reactiondesign.com.

Upon receipt of your computer information, Reaction Design will generate a set of license keys that are specific to your computer and to the selection of product modules that you have purchased. These license keys will be sent to you by email. The next two sections describe how to install the license keys on your PC.

2.4 Installing a Windows License

The SERVER line of the license file lists the hostname and Imhostid (12-character hexadecimal string) for the machine that will run the license service. This machine is referred to as the "license server". Instructions for installing the license file on this license server machine and starting up the license service is provided in [Section 2.4.1](#). Typically, we provide "floating licenses" that use our software from any machine on the network. These floating licenses are hosted on the "license server", but can be accessed from other machines that we refer to as "network clients". If the machine on which you are installing our software is not also the license server machine, you must set up a license connection between the network client and the license server. Please refer to [Section 2.4.2](#) for instructions on how to set up the license connection from a "network client".

2.4.1 Windows License Server or Nodelocked License

1. Once you have received an email with a license file from Reaction Design, you will need to place the license file in the correct location. Save the attachment as a file named **reaction.lic** or **chemkin.lic** in the *licenses* subfolder of your product installation (e.g., for a typical CHEMKIN installation save the file as **C:\Program Files\Reaction\licenses\chemkin.lic**).



When saving your license file as **chemkin.lic** or **reaction.lic**, be sure that your text editor does not inadvertently add an extra ".txt" extension onto the end of the file name. To view the file extension, you can open a command prompt, change folders to the *c:\Program Files\Reaction\licenses* folder and type **DIR**; the full file name of the license file should be listed. Alternatively, you can right-click on the file, select the **Properties** command. Then, click the Detail tab and look at the **File Name** entry. It will show the file extension even if your Windows folder options setting is to hide file extensions.

2. Edit the license file using a text editor of your choice:
 - a. If the SERVER and DAEMON lines exist, change the text line, SERVER <servername>, so that **<servername>** is the name (e.g., "MYPC") or IP Address (e.g., "192.168.0.23") of the Network License Server.



If this change is not made, then the Manage License Utility will attempt to change the license file to the name of the computer where it is running. In many cases, Reaction Design will make this change before sending the license file.

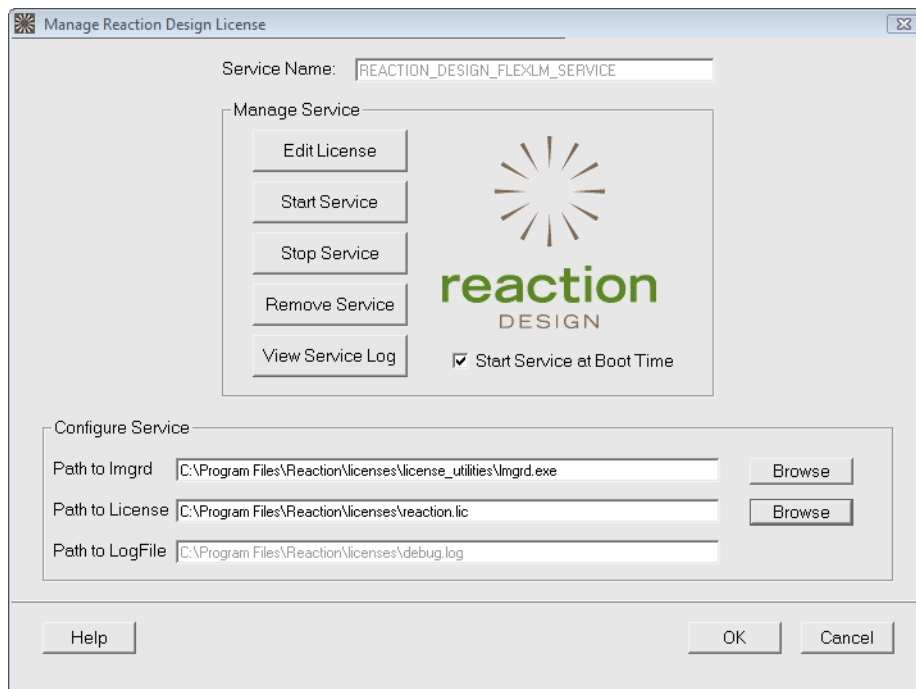
- b. On the DAEMON line, verify that the PATH to **reaction.exe** is correct; the default location is
C:\Program Files\Reaction\licenses\license_utilities\reaction.exe.
- c. Save the license file. If no SERVER or DAEMON lines are included in the original file, then no changes are required.

You now need to start the license server to activate the product. To activate a license on a Windows Node-Locked License or Windows Network License Server (Network Clients can skip this step), complete the following steps.

3. Navigate to **Start > All Programs > Reaction Design > License Tools > Manage Reaction Design Licenses**. In Windows 7 and Windows Vista, right-click on this item and select **Run as Administrator**. With Windows XP, simply click on it. This should open the License Tool dialog, as shown in [Figure 2-4](#). See http://www.reactiondesign.com/help/open/help_windows7.html for more details on the additional security requirements and the **Run as Administrator** option.

Figure 2-4 Reaction Design License Tool for Windows Platforms

This utility allows you to easily start and stop a license DAEMON service for a Windows Node-locked computer or for a Windows Network License Server. Starting the service allows Reaction Design software to access the license keys.



4. Click the **Start Service** button to begin the license daemon service. With the **Start Service at Boot Time** box checked (default), the Start Service action will not need to be repeated, unless there is a change to the license file or to the license daemon.
5. After waiting a few seconds, the Service Log (debug.log file) is displayed and you can verify that the service was successfully started. An example of text that would be displayed after the license daemon is initialized is shown in *Figure 2-5*.



Windows 7 and Vista will not allow the Start Service command to succeed unless the lmgrd executable is version 11.4 or higher. This version is distributed with CHEMKIN 4.1.1, CHEMKIN-PRO, ENERGICO, and FORTÉ and should be used with Windows-7- and Vista-based license servers. Even so, you may encounter problems due to operating-system security and need to manually start the license daemons after rebooting.

Figure 2-5 Example of log file created by the Reaction Design License Tool

The example shows that the DAEMON was successfully started, echoes the location of the license file, and shows the identity of the license server. It also lists the licensed features available

```

0:29:17 (lmgrd) -----
0:29:17 (lmgrd) Please Note:
0:29:17 (lmgrd) This log is intended for debug purposes only.
0:29:17 (lmgrd) In order to capture accurate license
0:29:17 (lmgrd) usage data into an organized repository,
0:29:17 (lmgrd) please enable report logging. Use Macrovision's
0:29:17 (lmgrd) software license administration solution,
0:29:17 (lmgrd) FLEXnet Manager, to readily gain visibility
0:29:17 (lmgrd) into license usage data and to create
0:29:17 (lmgrd) insightful reports on critical information like
0:29:17 (lmgrd) license availability and usage. FLEXnet Manager
0:29:17 (lmgrd) can be fully automated to run these reports on
0:29:17 (lmgrd) schedule and can be used to track license
0:29:17 (lmgrd) servers and usage across a heterogeneous
0:29:17 (lmgrd) network of servers including Windows NT, Linux
0:29:17 (lmgrd) and UNIX. Contact Macrovision at
0:29:17 (lmgrd) www.macrovision.com for more details on how to
0:29:17 (lmgrd) obtain an evaluation copy of FLEXnet Manager
0:29:17 (lmgrd) for your enterprise.
0:29:17 (lmgrd) -----
0:29:17 (lmgrd) Done rereading
0:29:17 (lmgrd) FLEXnet Licensing (v10.1.3) started on Kearney (IBM PC) (11/14/2006)
0:29:17 (lmgrd) Copyright (c) 1988-2004 by Macrovision Corporation. All rights reserved
0:29:17 (lmgrd) US Patents 5,390,297 and 5,671,412.
0:29:17 (lmgrd) World Wide Web: http://www.macrovision.com
0:29:17 (lmgrd) License file(s): C:\Program Files\Reaction\licenses\reaction.lic
0:29:17 (lmgrd) lmgrd tcp-port 28850
0:29:17 (lmgrd) Starting vendor daemons ...
0:29:17 (lmgrd) Starting vendor daemon at port 28851
0:29:17 (lmgrd) Using vendor daemon port 28851 specified in license file
0:29:18 (lmgrd) Started reaction (pid 3364)
0:29:18 (reaction) Server started on Kearney for:
0:29:18 (reaction) CHEMKIN CHEMKIN_UI AURORA CRESLAF
0:29:18 (reaction) MFC OPPDIF OVEND
0:29:18 (reaction) PARAMETER_STUDY_UI PASR PLUG
0:29:18 (reaction) PREMIX SENKIN SHOCK
0:29:18 (reaction) SPIN SURFTHERM TWAFFER
0:29:18 (reaction) UNCERTAINTY UNCERTAINTY_UI
0:29:18 (lmgrd) reaction using TCP-port 28851
  
```



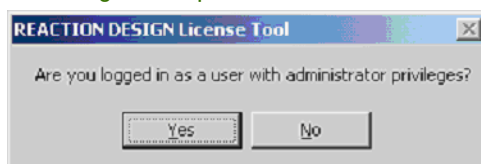
Occasionally the `port@host` or license file location set in the Manage Reaction Design License tool does not get updated into the computer's environment until the computer is rebooted and the FLEXlm License Finder dialog will appear the first time you start a Reaction Design application. Simply provide the same license file path to this utility that you provided to the Manage Reaction Design License utility.

2.4.2 Network Clients

Network or floating licenses allow more than one machine to run a product by accessing a centrally located license file that resides on a Network License Server. Depending upon the number of seats purchased a license allows one or more simultaneous active users to run the product. Clients of the Network License Server should have their own local installation of the product. The client does not need to be running on the same platform as the License Server.

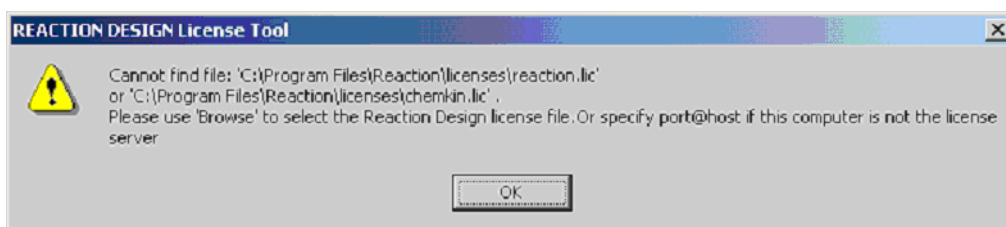
Start the Manage Reaction Design License Tool as described in [Section 2.4.1](#). You are not required to have systems admin privileges to specify the license server location. So, respond **Yes** or **No** to the Admin Privileges ([Figure 2-6](#)) prompt as appropriate.

Figure 2-6 License Tool: Admin Privileges Prompt.



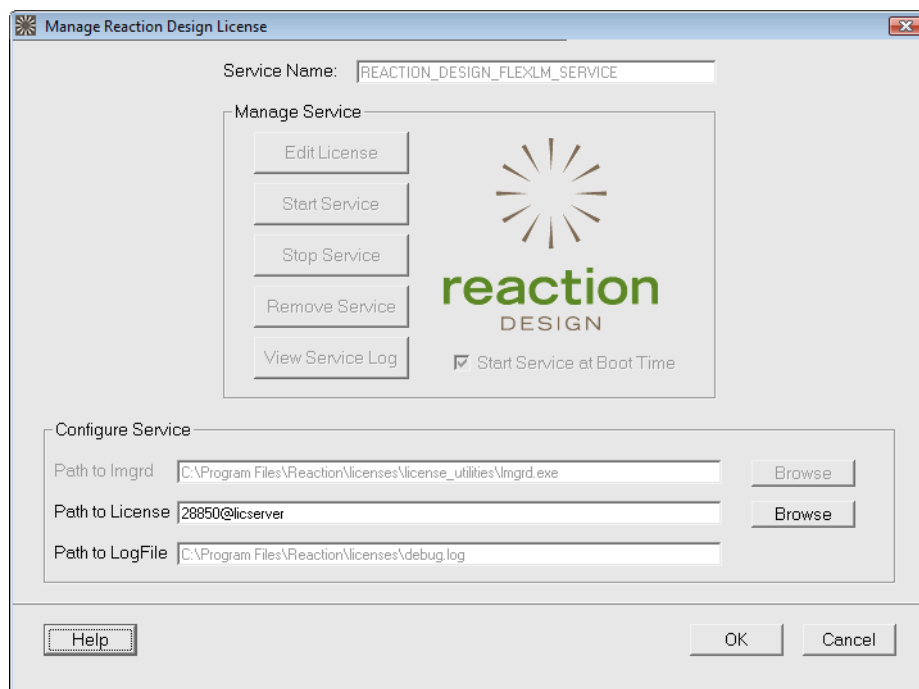
You are not required to have a copy of the Server's license file on the client machine, and we recommend that you do not copy it, as this may cause confusion. In this case, you will likely see the warning in [Figure 2-7](#). Simply click **OK**.

Figure 2-7 License Tool: No License Warning.



Finally, in the Path to License field ([Figure 2-8](#)), enter the port@host location of the license server. By default, the Reaction Design license server uses 28850 as the port. So, enter **28850@<servername>**, where **<servername>** is the name of the license server machine, and click **OK**.

Figure 2-8 License Tool: Path to License.



Now the client will be able to check out a license through the Server daemon.

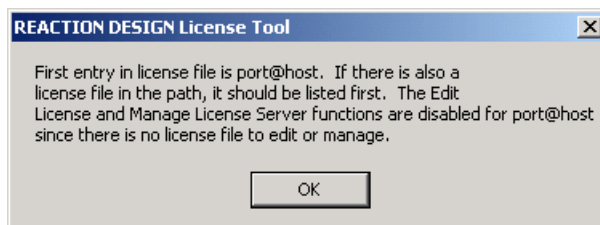
Occasionally the port@host or license file location set in the Manage Reaction Design License tool does not get updated into the computer's environment until after one of these situations:

- ✓ The **My Computer > Properties > Advanced > Environment Variables** tab is opened and closed. (This triggers a refresh of the environment variable settings.)
- ✓ The computer is rebooted (and all environment settings are refreshed).

In these cases, the FLEXlm License Finder dialog message will appear (but is minimized) and you will need to specify the same port@host or license file path that you just specified in the Manage Reaction Design License tool. We have made every attempt to prevent this problem, but you may still encounter it. You will only need to provide this information to the FLEXlm License Finder once.

You may see a message warning about the port@host listing in the license file as shown in [Figure 2-9](#). You can safely ignore the warning and click **OK**.

Figure 2-9 Port@Host warning message



2.5 Windows Licensing Utilities

Within a Windows installation, the license utilities are found by default in:

C:\Program Files\reaction\licenses\license_utilities

The following sections describe the utilities that we provide:

2.5.1 Request a New Reaction Design License

This program collects the information needed by Reaction Design to generate a license for your computer. You only need to use this utility if your computer will be the license server.

2.5.2 Manage Reaction Design License

This program collects the information needed to tell the Reaction Design applications how to contact the license server. If your computer is the license server, this program also allows you to start and stop the license service. You should select the Start Service at Boot Time option so that the license server is started whenever the computer is rebooted. You only need to stop the service to (1) install a new Reaction Design product or license or (2) perform troubleshooting operations and re-initialize your daemon log file.

2.5.3 check_license.bat

Included with this release is check_license.bat, which is a clickable program that will query your license service about its availability. To run this program, simply double-click on it. The resulting display will consist of the output of the "lmstat" utility and the "lmdiag" utility. The former checks the availability of the license daemons and number of licenses enabled in the license file (on the license server). The latter checks

whether your computer is allowed to check out the enabled license features. Shown in [Figure 2-10](#) is a condensed version of what you want to see: it shows the license daemons are UP and the license features are available for checkout. [Figure 2-11](#) shows the undesired result when the license daemon has not yet been started.

In [Figure 2-11](#), note that you do not see “UP” for the two daemons. Also, you do not see any feature information about AURORA, CHEMKIN, etc.

The key message in [Figure 2-11](#) is highlighted with red font in this manual, but will not be shown in red in your actual display. This message says lmgrd is not running. Since it is not running, the attempt to connect to it fails (is refused). The solution is to start the license service as described in [Section 2.4](#). If you are attempting to connect from a Network Client, you will need to forward this request to whomever administers the license server machine.

2.5.4 set_license_path.bat

This script prompts you for the port@host location of your license server and also updates the registry and environment-variable settings used by FlexLM to keep track of locations where it has successfully obtained a license checkout. This utility is useful to clear/purge this information and store only the current location

Having a history of obsolete license server locations can slow down the license checkout process because the program tries each location and must wait for a lack-of-reply timeout before trying the next location.

Figure 2-10 Output displayed when license is up

```

> "C:\Program Files\Reaction\licenses\license_utilities\lmutil.exe" lmstat
-a -c "C:\Program Files\Reaction\licenses\reaction.lic"
lmutil - Copyright (c) 1989-2004 by Macrovision Corporation. All rights
reserved.
Flexible License Manager status on Wed 2/8/2006 12:36
[Detecting lmgrd processes...]
License server status: 28850@HQWS011
    License file(s) on HQWS011: C:\Program
Files\Reaction\licenses\reaction.lic:
    HQWS011: license server UP (MASTER) v10.1
Vendor daemon status (on HQWS011):
    reaction: UP v10.1
Feature usage info:
Users of AURORA: (Total of 2 licenses issued; Total of 0 licenses in use)
Users of CHEMKIN: (Total of 2 licenses issued; Total of 0 licenses in
use)
<etc>
Users of SURFTHERM: (Total of 2 licenses issued; Total of 0 licenses in
use)
> "C:\Program Files\Reaction\licenses\license_utilities\lmutil.exe" lmdiag
-n -c "C:\Program Files\Reaction\licenses\reaction.lic"
lmutil - Copyright (c) 1989-2004 by Macrovision Corporation. All rights
reserved.
FLEXlm diagnostics on Wed 2/8/2006 12:36
-----
License file: C:\Program Files\Reaction\licenses\reaction.lic
-----
"AURORA" v2007.02, vendor: reaction
    License server: HQWS011
    floating license expires: 02-feb-2007
This license can be checked out
-----
"CHEMKIN" v2007.02, vendor: reaction
    License server: HQWS011
    floating license expires: 02-feb-2007

```

Figure 2-11 Output displayed when license is down

```
> "C:\Program Files\Reaction\licenses\license_utilities\lmutil.exe" lmstat
-a -c "C:\Program Files\Reaction\licenses\reaction.lic"
lmutil - Copyright (c) 1989-2004 by Macrovision Corporation. All rights
reserved.
Flexible License Manager status on Wed 2/8/2006 12:45
[Detecting lmgrd processes...]
License server status: 28850@HQWS011
    License file(s) on HQWS011: C:\Program
Files\Reaction\licenses\reaction.lic:
lmgrd is not running: Cannot connect to license server system. (-
15,10:10061 "WinSock: Connection refused")
> "C:\Program Files\Reaction\licenses\license_utilities\lmutil.exe" lmdiag
-n -c "C:\Program Files\Reaction\licenses\reaction.lic"
lmutil - Copyright (c) 1989-2004 by Macrovision Corporation. All rights
reserved.
FLEXlm diagnostics on Wed 2/8/2006 12:45
```

2.5.5 lmgrd.exe and lmgrd_win64.exe

This FLEXnet program is the license server program. It runs in the background (like a print server) and is often referred to as a “daemon”. This program communicates with any application needing a license. You may have multiple copies of this program running if you have multiple applications using FLEXnet/FLEXlm. You can also combine the licenses. If you are running a client and connecting to a license server on another machine, this program is not needed on your computer. We don’t currently use the 64-bit lmgrd executable.

2.5.6 reaction.exe and reaction_win64.exe

This FLEXnet-linked program is the Reaction Design-specific component of our licensing. It keeps track of how many licenses are used/available for each licensed feature. It only communicates with lmgrd; it does not directly communicate with any Reaction Design application. It uses a separate TCP/IP port to communicate; by default, we use PORT=28851 in the DAEMON line of the license file to specify this port. If you are running a client and connecting to a license server on another machine, this program is not needed on your computer. We don’t currently use the 64-bit reaction executable.

2.5.7 Imutil.exe and Imutil_win64.exe

This is a FLEXnet-provided utility program that can perform a variety of diagnostic and license server functions. We call it from within check_license.bat and set_license_path.bat. You can invoke it directly from a DOS shell. Please refer to the FLEXnet online documentation we provide for more information.

2.5.8 Imtools.exe

There is a FLEXnet-provided graphical interface to the Imutil.exe utility, which can be accessed from the **Start > Reaction Design > License Tools > Supplemental FLEXnet Tools > LMTools** menu option. It can provide an alternative way to start/stop your license file if the Manage Reaction Design License tool encounters a problem. Please refer to the FLEXnet online documentation we provide for more information.

2.5.9 installs.exe

This is a FLEXnet-provided utility program that updates the Windows Registry with the information needed to enable the license server to be a Windows Service. The Manage Reaction Design License tool invokes this utility, as does Imtools.exe. Please refer to the FLEXnet online documentation we provide for more information.

2.5.10 vista__START_license_server.bat

This is a command file to start the license daemons. Double-click on it to run.

2.5.11 vista__STOP_license_server.bat

This is a command file to stop the license daemons. Double-click on it to run.

2.6 License Utilities Folder

In addition to check_license.bat, the license_utilities folder contains the license daemons (Imgrd.exe and reaction.exe), the Manage Reaction Design License Tool executable (RDLICENSETool.exe), and the Request a License Tool (RequestLicense.exe). There are other exe's and dll's in the folders, and it has subfolders containing licensing documentation provided by Reaction Design and Flexera, formerly Macrovision (vendor of FLEXnet license utility). This documentation can be accessed from the **Start** menu via:

Start > Reaction Design > License Tools > Supplemental FLEXnet Tools > FLEXnet Licensing User Manual

The executables in this folder work with FLEXnet version 11.4 and higher. Since subsequent Reaction Design product releases may be built using newer versions of FLEXnet, this folder contains subfolders with FLEXnet-version-specific files. The installation process copies the latest executables and dll's up to the license_utilities folder. If the installation is performed while the license daemons are running, those running daemons are renamed to *PREVIOUS_Imgrd.exe* and *PREVIOUS_reaction.exe*. Once you have stopped and restarted the licensing service, these renamed *PREVIOUS_** files can be deleted.

2.7 Uninstalling a Reaction Design Product

After you have installed a Reaction Design product with the steps described in this chapter, it is possible to remove it from your system if necessary. The following steps will remove an installed product permanently from your system:

1. Navigate to **Start > All Programs > Reaction Design > License Tools > Manage Reaction Design Licenses**. This should start the License Tool dialog, as shown in [Figure 2-4](#).
2. Click the **Remove Service** button.
3. Click **OK**.
4. Navigate to **Start > Control Panel** to open the control panel.
5. Select the **Add or Remove Programs** control panel.
6. Select the product name, for example, **CHEMKIN-PRO 15101**, from the **Install/Uninstall** tab.
7. Click **Add/Remove**.



If you have added files to or modified files in the product's installation, the Uninstall process will not automatically remove these files.

3 UNIX Installation and Licensing

This section provides detailed instructions for installing Reaction Design products on any one of our supported UNIX platforms (including Linux).

3.1 Executing the UNIX Installation Script

If you are installing the product into a public directory, make sure that you have **root** or similar privileges before running the installation script. Once you have the correct permissions, complete the steps below to execute the UNIX installation script:

1. Execute the installation script with the following command:

```
/bin/sh ./<product>_xxx_setup.sh
```

In the above command, replace **xxx** with one of the following strings, selecting the one that best describes your UNIX platform: **linux9**, or **linuxx8664**.

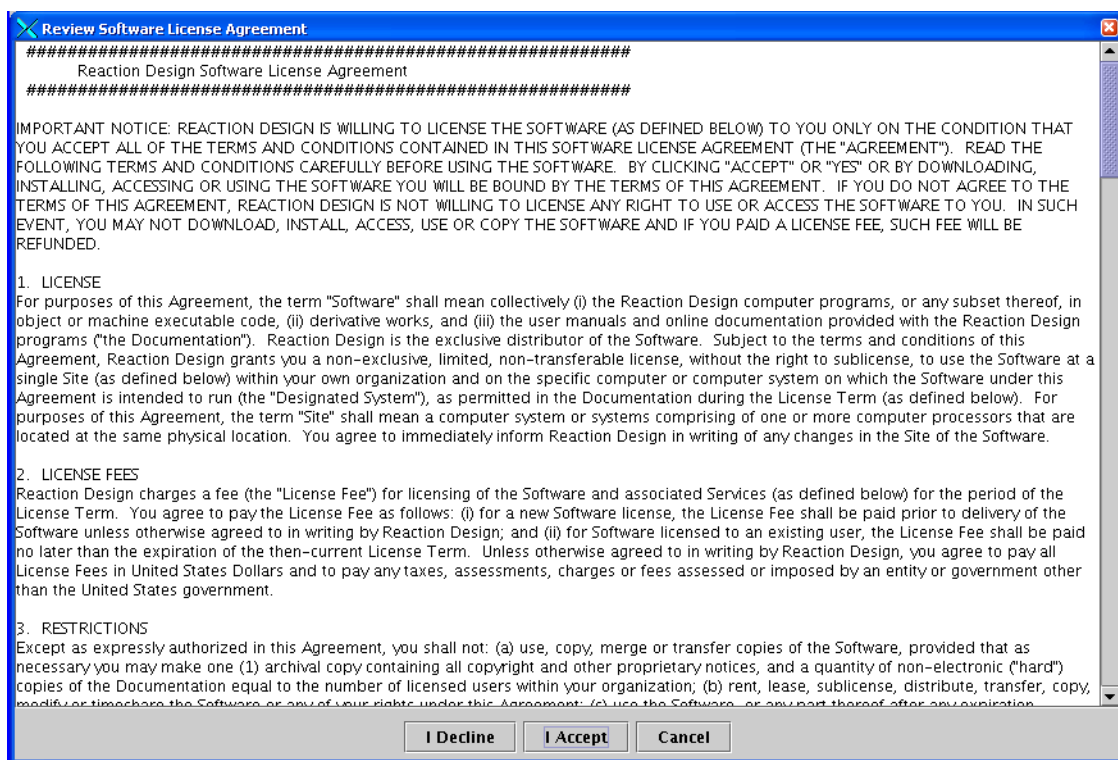
Replace **<product>** with **forte40101** or **energico30101** or **chemkinpro15101** or **chemkincfdapi20101** or **chemkincfdfluent_20102** or **rdlictools114**.

Table 3-1 Platform strings for installation script

<i>Replacement for xxx string</i>	<i>Operating System(s)</i>
linux9	Linux 32 bit: Red Hat Enterprise 4, 5 SuSE 10, 11
linuxx8664	Linux 64-bit: Red Hat Enterprise 4, 5 SuSE 10, 11

- The Reaction Design License Agreement screen ([Figure 3-1](#)) will appear. Accept the license agreement by clicking the **I Accept** button.

Figure 3-1 Reaction Design License Agreement screen



- If you are installing CHEMKIN-CFD for FLUENT, you must select the location of an existing FLUENT installation. The CHEMKIN-CFD for FLUENT binary files will be installed into this location.



An existing installation of FLUENT is required to install the CHEMKIN-CFD for FLUENT Module.

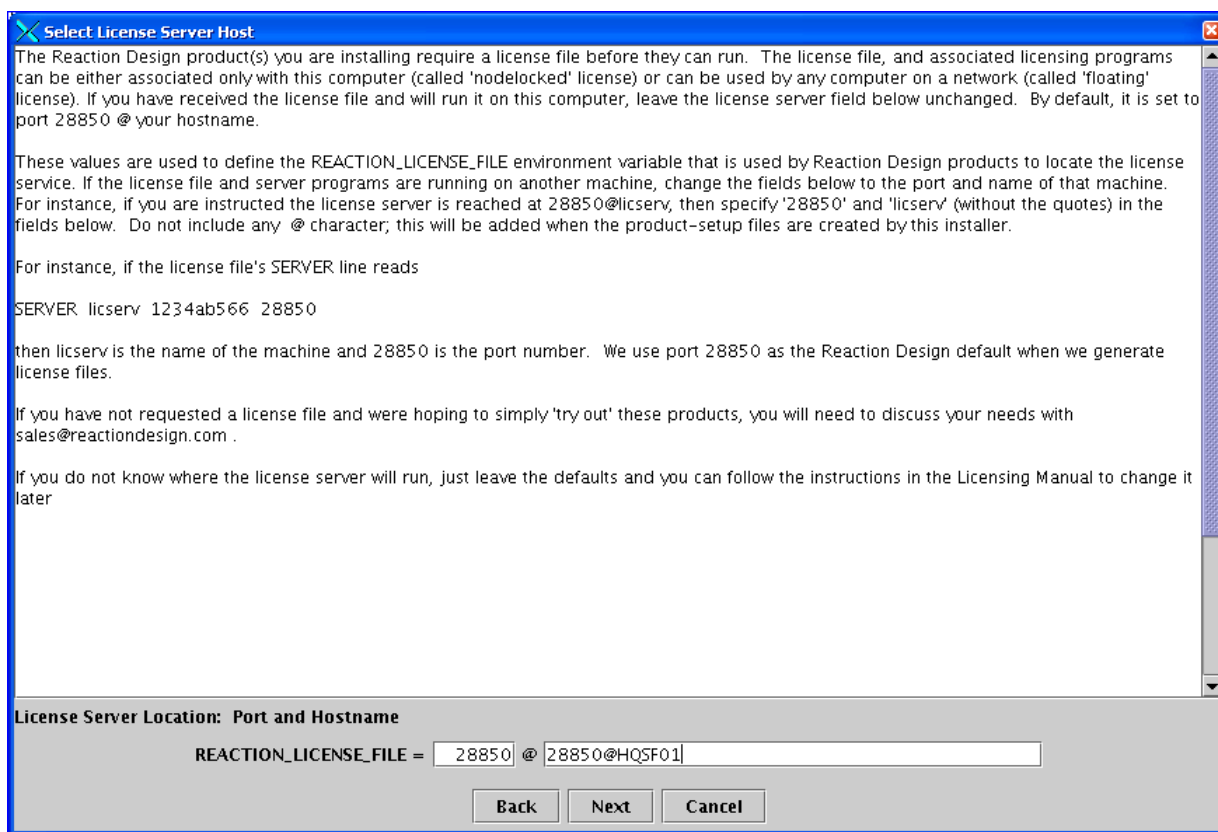
- The product Installation screen will appear. Verify that the correct installation directory is selected and displayed. If the installation directory is acceptable, click **Next** to continue.

If the installation directory is not what you want, please browse to the correct location and then click the **Open** button to select it.

Once you have identified the installation directory, the default installation setup will create a new **Reaction/<product>_xxx** directory within your home directory.

The Select License Server screen is presented. This screen contains instructions and by default shows the settings appropriate for a situation where the license server will run on the computer where the software is being installed. If you have already installed another 2006 or later Reaction Design product and set the license location, that location will be shown on this panel. If you have installed earlier Reaction Design products, please set the license port@host location as appropriate. Please read the instructions on the installation screen for more details.

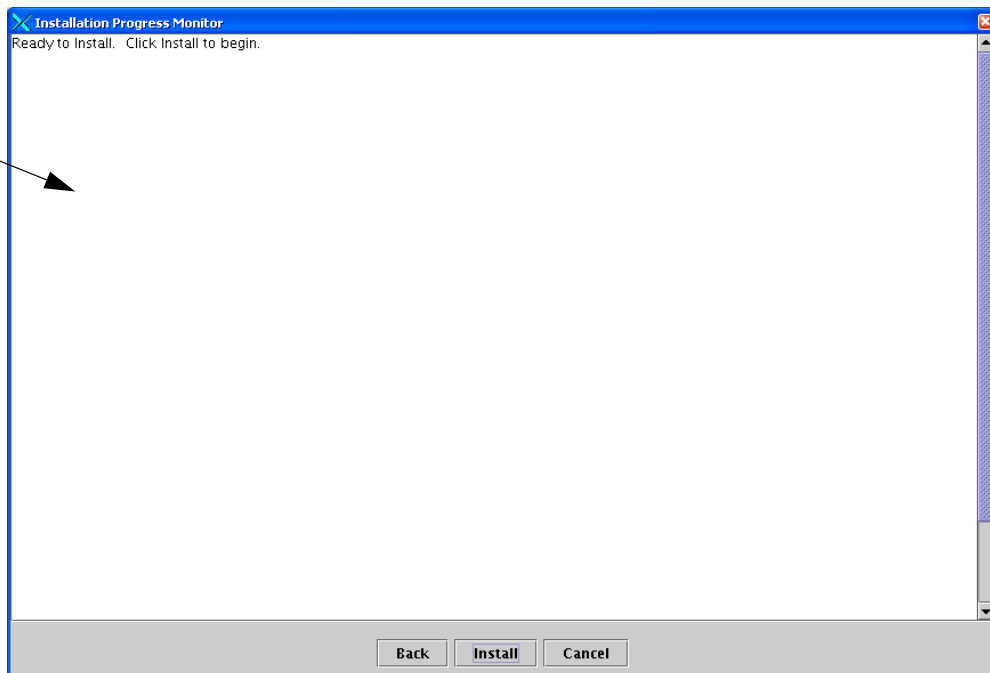
Figure 3-2 Select License Server screen



5. The Installation Progress Monitor is displayed. Begin the installation by clicking the **Install** button.

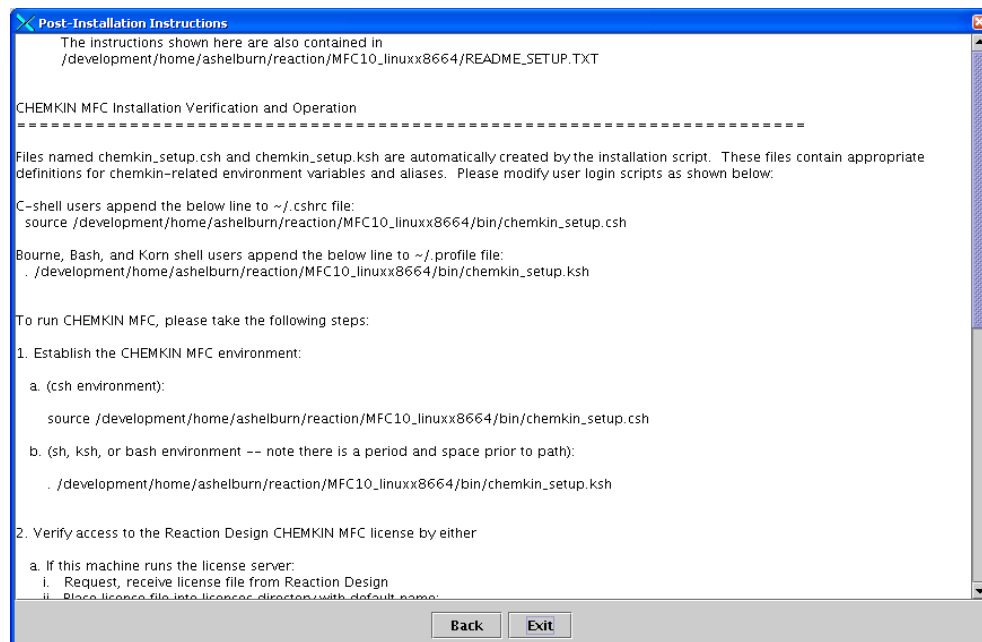
Figure 3-3 Installation Progress Monitor screen

After the installation is complete the message **Installation Succeeded** will appear.



- Next, instructions for verifying the installation and operating the Reaction Design product are presented, as illustrated in [Figure 3-4](#). Follow the instructions that apply to your installation.

Figure 3-4 Installation screen, after installation is complete



The installation of the product is now complete. Please proceed to [Section 3.2](#) to configure your environment.

3.1.1 Troubleshooting of Linux Installation

The Linux installer consists of a shell script with an embedded binary file. The shell script uses the Linux **head** and **tail** commands to split itself into shell instructions and binary file contents. The binary file is a gzip file that is uncompressed and contains a tar file. The tar file contains java installer components and a jar file that is installed by the java installer program. The jar file contains the actual application program contents. Occasionally, your linux shell environment may be incompatible with the shell script being executed or your system may be incompatible with the version of java we provide for running the installation program. Please refer to our FAQ page for more details on how to troubleshoot if you have this problem:

Register on our web site and then go to this URL:

<http://www.reactiondesign.com/help/open/help.html>

3.1.2 Automation of Linux Installation

Our linux installers use a self-extracting shell script to create a subdirectory from which a java program performs the installation. This java program can receive additional command line arguments that provide responses. To allow the shell script to automatically provide these responses to the java program, you must define an environment variable that contains the responses. For instance,

```
export RD_INSTALL_DEFINES="-DI_ACCEPT_LICENSE_TERMS=Yes -DRDIR=/rdhome/username/reaction /  
-DPORT=28850 -DSERVER=lic-server"
```

Because there are required spaces in this string, be sure to use single or double quotes around the entire string value as shown. The automated install will only run if all required responses are provided; otherwise it will run interactively and present all the usual interactive prompts. In addition to the above response items, other items that might be used with some installers are listed below.

CHEMKIN/CHEMKIN-PRO combined installer additional, optional arguments:

- DCK	Install CHEMKIN (in addition to CHEMKIN-PRO)
- DNOCKPRO	Do not install CHEMKIN-PRO
- DWB	Install Reaction Workbench

ENERGICO optional argument

-DEPROJECT=project	Specify an ENERGICO special project value
---------------------------	---

3.2 Setting Environment Variables

Reaction Design products require a few environment variables that help them to operate properly. These environment variables are shown in [Table 3-2](#).

The UNIX installation script typically creates two files in the product **bin** subdirectory that can be used to define our product start aliases and establish the runtime environment required by our products. The names of these files vary by product; the .ksh version can be used with Bash, Bourne (sh), or Korn (ksh) shells. The .csh flavor can be used with csh and tcsh shells.

CHEMKIN and CHEMKIN-PRO installation each create **chemkin_setup.csh** and **chemkin_setup.ksh** and also **chemkinpro_setup.csh** and **chemkinpro_setup.ksh**.

CHEMKIN-CFD/API installation creates **chemkincfdapi_setup.csh** and **chemkincfdapi_setup.ksh**.

ENERGICO installation creates **energico_setup.csh** and **energico_setup.ksh**.

FORTÉ installation creates **forte_setup.csh** and **forte_setup.ksh**.

CHEMKIN-CFD for FLUENT does not currently create these files and you must define the REACTION_LICENSE_FILE environment variable via some other means (such as your .bashrc or .profile or .cshrc or .login or other method). The reason for this exception is that this module is invoked indirectly by starting FLUENT and you may want to make this change in whatever procedure you use to start FLUENT.

Although you can set the environment variables locally in a UNIX shell every time you run the CHEMKIN, ENERGICO, FORTÉ, or CHEMKIN-CFD/API, we recommend that you instead include the environment settings in the file that is sourced when you create a login Shell. This is .profile (Bourne shell) or .profile_Bash (Bash) or .login (csh or tcsh). (You can alternatively set these definitions in the file sourced whenever a new subshell is created-- .bashrc or .cshrc.)

To do this in a bash, sh, or ksh environment, put the following into **\$HOME/.profile_bash** or **\$HOME/.profile**:

For running CHEMKIN:

```
export PATH LD_LIBRARY_PATH
. $HOME/reaction/<product>/bin/chemkin_setup.ksh
```



For running CHEMKIN-PRO or Reaction Workbench [CHEMKIN-PRO Only]:

```
export PATH LD_LIBRARY_PATH
. $HOME/reaction/<product>/bin/chemkinpro_setup.ksh
```

To do this in a csh or tcsh environment, put the following into \$HOME/.login:

For running CHEMKIN:

```
source $HOME/reaction/<product>/bin/chemkin_setup.csh
```



For running CHEMKIN-PRO or Reaction Workbench [CHEMKIN-PRO Only]:

```
source $HOME/reaction/<product>/bin/chemkinpro_setup.csh
```



The shell scripts used to run the user interfaces are Bourne shell scripts and use the `*_setup.ksh` file to source the environment. Therefore, even if all users work in the C shell environment, the `*_setup.ksh` file is used also.



The PATH and shared object library path variables must be exported **prior** to sourcing the `*_setup.ksh` file. LD_LIBRARY_PATH is the shared object library path variable. For more information on the shared object library path variable, see [Table 3-2](#).

Table 3-2 Reaction Design Environment Variables

Variable	Description
\$REACTION_DIR	This is a required variable. It points to the root directory chosen for the product installation and is set by the installer. An example would be: \$HOME/reaction
\$REACTION_LICENSE_FILE	This is a required variable. It points to the location of a valid license port@host of a valid Reaction Design license server. By default this is set by the installer to be: 28850@server-host The value is stored in a file named <code>.reaction_license_server_path</code> found in: \$REACTION_DIR/licenses/license_utilities directory
\$<PRODUCT>_VERS	Required by various Reaction Design products. This is an alphanumeric character string that describes the version of CHEMKIN, FORTÉ and other products. This variable is provided by the installer. For example, CHEMKIN 10101.
\$CHEMKIN_BIN, <PRODUCT>_BIN	Required by CHEMKIN and other products. It points to the location of the bin directory for the CHEMKIN installation. It is derived from the variables above during installation as the following: \${REACTION_DIR}/chemkin\${CHEMKIN_VERS}_xxx/bin where xxx is a platform-specific tag. This variable cannot be changed.

Table 3-2 Reaction Design Environment Variables (Continued)

<i>Variable</i>	<i>Description</i>
\$KINETICS_API_BIN	Required by CHEMKIN-CFD/API. It points to the location of the bin directory for the CHEMKIN-CFD/API installation.
\$PATH	The value \$CHEMKIN_BIN should be prepended to the \$PATH variable.
(shared object library path)	This is a required variable. The variable uses the \$<product>_BIN variable to define the UNIX shared object path. This has a different syntax depending on the UNIX platform. The shared object library path variable is \$LD_LIBRARY_PATH for Linux platforms.
\$CHEMKIN_HOME	Required by CHEMKIN. It will be defined as \$HOME/chemkin by default. The purpose of this variable is to identify a directory that will contain the user-specific preference file and a log file directory. Optionally it may contain chemistry sets, profile files or project files that are created during the use of CHEMKIN.
\$CHEMKIN_USER	This is an optional CHEMKIN variable. It is not automatically defined. The variable is used in naming the preferences file.
\$CKJAVAMEMORY	Optional variable defining how much memory to allocate to the Java Virtual Machine running the CHEMKIN Interface.
\$ENERGICO_MEMORY \$FORTE_MEMORY	Optional variable defining how much memory to allocate to the Java Virtual Machine running the ENERGICO or FORTÉ Interface. If not defined, you will be prompted for this value.

3.2.1 CHEMKIN Multi-user Environments

When multiple users share a CHEMKIN installation, they can choose to either work in the same project directories or keep their work separate. Preferences Files are a key component in configuring this, because they keep track of the various Working Directory locations each user has selected. While it is possible that multiple people will want the same preferences for Working Directory, Units of Measurement, etc., it is more likely that each user will want to configure these preferences individually even if they choose to work in the same Working Directory. Sharing the same preferences file can cause the history mechanism (for Working Directory and Chemistry Set selections) to become intermingled.

Separate preference files are created for each user because the CHEMKIN_HOME variable is user-specific by default. If you choose to explicitly define CHEMKIN_HOME to a common location then please also define CHEMKIN_USER so each user has a distinct value and receives a unique preference file.

3.3 Licensing for a UNIX System

This section provides instructions on how to obtain and install a Reaction Design license file once you have purchased the software. For purchasing information, contact Reaction Design (see [Chapter 5](#) for contact information).



You must have a valid license key to access the software downloads on the Reaction Design website. The license will also be required to run the installed product.

3.3.1 Assumptions

We assume the following for purposes of providing instructions on obtaining and installing a license on a UNIX workstation:

- ✓ You have already installed the product on your computer.
- ✓ The default installation directory for your UNIX workstation is **\$HOME/reaction**. If you have installed in a different location, please make the necessary replacements in the instructions that follow.

3.3.2 Required Tasks

1. Request a license from Reaction Design, providing information about your computer.
2. Install the license received from Reaction Design.

3.4 Requesting a License from Reaction Design

3.4.1 Obtaining Imhostid

Once you have purchased a license, you will be asked to provide the Imhostid for the machine which will be the license server. Assuming you have installed at least the Reaction Design license tools (or any product) on this machine, please obtain the Imhostid by doing the following:

1. `cd $REACTION_DIR/licenses/license_utilities`
2. `./request_license.sh`

This shell script will run the FLEXnet Imutil command to obtain the Imhostid. Output looks like this:

Reaction Design Request License Script

Please cut and paste all of the information below into an email to licensing@reactiondesign.com. This provides us with the information we need to generate the unlock keys contained in your license file. Since we also list your license number, your company/university/organization name, and your name in the license file, please be sure to include that information as well.

If you have not purchased a license to use Reaction Design products, you will not yet have a license number. In this case, please send all this information to sales@reactiondesign.com and our sales team will contact you to explore which of our products best meets your needs.

```
Hostname: linux64
Reaction Design Platform Type: linuxx8664
uname -a : Linux linux64 2.4.21-27.ELsmp #1 SMP Wed Dec 1 21:53:57 EST 2004 x86_64 x86_64
x86_64 GNU/Linux
```

```
Now obtaining FLEXnet Hostid:
lmutil - Copyright (c) 1989-2004 by Macrovision Corporation. All rights reserved.
The FLEXlm host ID of this machine is "001185ae5aaa"
```

This machine can be the machine you have installed the Reaction Design product on, or can be another UNIX or Windows machine.

3.4.2 Special cases for lmhostid on Linux

You may observe that the lmhostid is a MAC address on Linux machines. Frequently, Linux machines will have multiple MAC addresses. It's important that you use the request_license.sh script (or the underlying lmutil lmhostid command) to obtain this information, rather than simply providing the MAC addresses directly. This allows us to know FLEXnet utilities are operating and allows us to know which MAC address FLEXnet wants to use.

Changes in your network adapter configurations, such as installing a new Ethernet card or teaming your NICs, can alter the results of the lmhostid value. If you experience licensing problems in these cases, please rerun the request_license.sh script and compare the results now obtained with the SERVER line of your license file.

Beowolf and other Linux cluster configurations that use intra-cluster and external Ethernets to shield the Beowolf nodes from external traffic should use the intra-cluster MAC address since they will want the other nodes to obtain licenses from the head node. This requires a floating license; you may need to work with your NIC configuration files to reorder the search order such that lmhostid is using the intra-cluster MAC address.

Dual-boot machines that run both Windows and Linux, especially with docking stations, can pose additional problems due to multiple MAC addresses depending on hardware profile and operating system selection. In these cases, we may need to provide a license based on DISK_SERIAL_NUMBER; please use the Windows version of Request License to obtain this information. These machines do not make good choices for serving a floating license. Please be sure to inform us when requesting a license for this configuration.

3.4.3 Requesting Your License File

Once you have obtained a unique identifier, please send the following information to Reaction Design (email to licensing@ReactionDesign.com) to receive your license file:

1. The complete result of the **request_license.sh** command.
2. Your CHEMKIN **License Number** (located on your License Specifications Form).
3. The Licensee Contact for your organization (located on your License Specifications Form).

Upon receipt of your computer information, Reaction Design will generate a set of license keys that are specific to your computer and to the selection of products that you have purchased. These license keys will be sent to you by email. The next sections describe how to install the license keys on your UNIX workstation.

3.5 Installing a UNIX License

The SERVER line of the license file lists the hostname and Imhostid (12-character hexadecimal string) for the machine that will run the license service. This machine is referred to as the "license server". Instructions for installing the license file on this license server machine and starting up the license service is provided in [Section 3.5.1](#). Typically, we provide "floating licenses" that use our software from any machine on the network. These floating licenses are hosted on the "license server", but can be accessed from other machines that we refer to as "network clients". If the machine on which you are installing our software is not also the license server machine, you must set up a license connection between the network client and the license server. Please refer to [Section 3.5.2](#) for instructions on how to set up the license connection from a "network client".

3.5.1 UNIX Node-locked or Network License Server

This section shows how to activate a license on a UNIX Node-locked License or UNIX Network License Server.



Note: If you are using a license server installed elsewhere, you are a network “client” and can skip this section.

After requesting a license, you should receive by email a specific license to run a Reaction Design product on your system. The file may have either UNIX or PC line-endings, depending on where and how you receive your email; if you need to transfer the license file from one machine to another, be sure to use ftp in ascii mode to guarantee the line endings get converted correctly

1. Edit the license file using a text editor of your choice. Name the file either `reaction.lic` or `chemkin.lic` and place it in the `licenses` directory.
2. Change the text line, `SERVER <servername>`, so that **<servername>** is the name (e.g., “**MYWORKSTATION**”) of the Network License Server (or the local machine for a Node-locked License).
3. On the `DAEMON` line, verify that the `PATH` to **reaction** is correct; the default location is **`$REACTION_DIR/licenses/license_utilities/101/xxx/reaction`**, where **xxx** is your platform type.
4. Complete the following steps:



Do not run `lmgrd` as root.

If you have not named the license “`reaction.lic`” and placed it in the **licenses** directory, then please make the appropriate changes to these instructions when reading.

- a. Go to the `license_utilities` directory:

```
cd $REACTION_DIR/licenses/license_utilities
```

- b. Start the license server using the `manage_license.sh` shell script:

```
./manage_license.sh start ../reaction.lic ../reaction_debug.log
```

This will start the license server, placing the `lmgrd` log file in the **`../reaction_debug.log`** location (in the `licenses` directory). This is now our recommended location.

The `manage_license.sh` script may alert you to the DAEMON path being incorrect or the SERVER name not being updated. In this case, please correct the license file accordingly. Once any problems are corrected and you have successfully started the license, you will see diagnostic information scroll down your window informing you of the license daemon status (UP) and the number of copies and expiration date of each license. [Figure 3-5](#) provides an example. However, a message such as that shown in [Figure 3-6](#) indicates that there was a problem starting the license.

Figure 3-5 Successful license startup diagnostic information from `manage_license.sh`

```
lmutil - Copyright (c) 1989-2004 by Macrovision Corporation. All rights reserved.
Flexible License Manager status on Wed 2/8/2006 17:03
License server status: 28850@hqrh9
  License file(s) on hqrh9: /usr/local/reaction/licenses/reaction.lic:
    hqrh9: license server UP (MASTER) v10.1
Vendor daemon status (on hqrh9):
  reaction: UP v10.1
Feature usage info:
Users of AURORA: (Total of 1 license issued; Total of 0 licenses in use)
Users of CHEMKIN: (Total of 1 license issued; Total of 0 licenses in use)
<etc>
Users of SURFTHERM: (Total of 1 license issued; Total of 0 licenses in use)
lmutil - Copyright (c) 1989-2004 by Macrovision Corporation. All rights reserved.
FLEXlm diagnostics on Wed 2/8/2006 17:03
-----
License file: 28850@hqrh9
-----
"AURORA" v2007.02, vendor: reaction
  License server: hqrh9
  nodelocked license, locked to ethernet address "00b0d022b121" expires: 07-feb-2007
This license can be checked out
-----
"CHEMKIN" v2007.02, vendor: reaction
  License server: hqrh9
  nodelocked license, locked to ethernet address "00b0d022b121" expires: 07-feb-2007
This license can be checked out
-----
"SURFTHERM" v2007.02, vendor: reaction
  License server: hqrh9
  nodelocked license, locked to ethernet address "00b0d022b121" expires: 07-feb-2007
This license can be checked out
-----
```

Figure 3-6 Unsuccessful License startup diagnostic information from `manage_license.sh`

```
lmutil - Copyright (c) 1989-2004 by Macrovision Corporation. All rights reserved.
Flexible License Manager status on Wed 2/8/2006 17:27
Error getting status: Cannot connect to license server system. (-15,570:115 "Operation now in progress")
lmutil - Copyright (c) 1989-2004 by Macrovision Corporation. All rights reserved.
FLEXlm diagnostics on Wed 2/8/2006 17:27
```

If you have problems starting the license, please examine the `lmgrd` log file `../reaction_debug.log` for specific messages about starting your license service. If you need help troubleshooting your license installation, please see

<http://www.reactiondesign.com/help/open/help.html>

If you need further assistance, contact Reaction Design Support (see [Chapter 5](#) for contact information) and provide your license file, log file, and the specific messages you are obtaining.

3.5.2 Network Clients

1. The location defined for the REACTION_LICENSE_FILE environment variable in `chemkin_setup.csh|ksh` is now defined as:

```
`cat  
$REACTION_DIR/licenses/license_utilities/.reaction_license_ser  
ver_path`
```

which results in a file being read and the contents of that file becomes the license location. This file is updated by the `manage_license.sh` shell script with the `setpath` option, as described in [Section 3.5.3.1.2](#).

2. If you need to specify a different license location, please see the next section on setting your license path.
3. You are now ready to verify your installation of the product.

3.5.3 UNIX Licensing Utilities

There are license utility programs (shell scripts) located in:

```
$REACTION_DIR/licenses/license_utilities
```

These scripts allow you to start and stop the license server (if you are on the license server) and check the status of the license server from any machine. In addition, you can update the path to the license server that is used by Reaction Design applications when checking out a license and obtain the information required to request a license file.

3.5.3.1 [manage_license.sh](#)

This shell script performs four distinct actions: check status, set the license server path, start the license server, and stop the license server. Each of these operations can take additional arguments beyond the action argument. For example, the check status action is invoked as follows:

3.5.3.1.1 Check Status

The syntax for this command is:

```
manage_license.sh status [license server location]
```

This command checks the status of the license server. It performs this check by determining the license server location and calling the `check_license.sh` script. If you do not specify the location of the license server, it uses whatever location was specified previously. If you have never specified a location, the location provided at the time of installation is used. By default, this is `28850@<your hostname>`.

When the license server is up, you will get a lot of output listing the license daemons and license features that are available for use. Getting a lot of output is usually sufficient to confirm that the license server is up. The specific item to look for is “`reaction: UP v...`”, which indicates that the reaction daemon is up and communicating.

The output begins similarly to [Figure 3-5](#). The reaction UP line is the 5th line in that output.

If you do not get a lot of output, and instead get a brief output that looks something like [Figure 3-6](#), then the license server is either not up or you have not specified the correct location of the license server. In either case, you will need to work with the license administrator to learn more. If you are the license administrator, then you should log in to the license server machine and rerun this check.

The specification of the license server location is an optional parameter. If you are not on the license server, we strongly encourage specifying the license server location via the `port@host` syntax, such as `28850@<lic-server>` where **<lic-server>** is the hostname of the license server. If you are on the license server, you can alternatively provide the location as an absolute or relative path. For instance, the default license location is `../reaction.lic` or `../chemkin.lic` depending on what you named the license file. The `../` syntax means look in the parent directory.

If you have named your license file `../reaction.lic` and you run this status check as:

```
./manage_license.sh status ../reaction.lic
```

it will confirm whether the license is started or not. If the license server is not up, please see the section below about starting the license server. If the license server is up when queried this way, but does not report up when queried as

```
./manage_license.sh status 28850@<lic-server>
```

then please check the license file `SERVER` line for the port number, if any, specified. This will appear in the license file as the fourth component on the line.

```
SERVER <lic-server> 12ab34cd4934 28850
```

If no port is specified, please add 28850 (or any other port above 1700) to the SERVER line. When no port is specified, FLEXnet selects a port. The port selected is not entirely random, but it can vary and therefore is not useful in telling others how to locate the license server. For this reason, we strongly recommend always specifying a port on the SERVER line. We suggest 28850 because we believe this port is not used for any other purpose and we use this as our default value in our tools and documentation. Any new user of our tools will get 28850 by default.

3.5.3.1.2 Setting the License Server Path

The syntax for this command is

```
manage_license.sh setpath [license server location]
```

This action specifies the location of the license server. If you have never specified a location, the location provided at the time of installation is used. By default, this is 28850@<your hostname>. Use this command to change that location. This command creates/replaces a file in the license_utilities directory, named:

```
.reaction_license_server_path
```

This file is read by the <application>_setup.ksh/csh scripts to set the value of the REACTION_LICENSE_FILE environment variable. Using this setpath action centralizes the license server location information. Please note that older installations of CHEMKIN (4.0.x and earlier) do not use this approach. This tool is provided with Reaction Design products released in 2006 and later.

For reasons listed above, we recommend using the port@host method of specifying the license server location, for example:

```
./manage_license.sh setpath 28850@<lic-server>
```

If you do not specify a location, the default location of 28850@<your hostname> is used. When this command is run, it automatically invokes a license server status check on the location you specify.



Note: You only need to run this command if the location you provided during installation needs to be updated. If it does, the location should be updated on each machine containing an installation of the Reaction Design product(s) released in 2006 and later that reference this location file.

3.5.3.1.3

Starting the License Server

The syntax for this command is:

```
manage_license.sh start [license file] [daemon log]
```

This action starts the license server. For this action to be successful, you must be logged on to the license server machine, as specified in the license-file SERVER line. Also, the license server cannot already be running. For this reason, we suggest using the status check action prior to using the start action.

If you do not specify the license file location, you cannot specify the daemon log file location. The default license file location (full file path, either absolute or relative) is **../reaction.lic** or **../chemkin.lic**. The script checks for the existence of either file name, in the order listed. The default daemon log file location is **../reaction_debug.log**.



The daemon log file (**../reaction_debug.log**) contains diagnostic information listing the success or failure of starting the license server. If you are reporting license server problems, please be sure to provide this file and the license file itself along with any other diagnostic messages. Please look in this file for error messages; you can resolve a lot of license problems by reading this file carefully.

The **manage_license.sh** utility checks your license file for the SERVER line containing a match to the hostname that you are on. It also checks that the DAEMON reaction line points to an existing file. Other typical problems with starting UNIX/Linux license servers include:

1. **Port in use** because you very recently shut down the license server (or killed it from the command line). This is usually reported in the daemon log file. The solution is usually to just wait 5-15 minutes for the port to clear itself.
2. **Lockfile cannot be created.** In this case, the license server may already be running or it may have been killed. If you use the `kill -9` command, the license server may not have time to clean up and delete its lockfile. Typically, the lockfile is found as `/var/tmp/lockreaction`. The exact path will be listed in the daemon log file. This file must be deleted before you can start the license server; but you may not have the UNIX file permissions needed to do this. In this case, ask whomever created the file or someone with root permissions to delete it. Caution: Deleting the lockfile while the license server is running will stop that instance of the license server and any jobs currently using licenses it provides.

For more troubleshooting information, please see the FLEXnet manuals provided with these license_utilities:

[file://\\$REACTION_DIR/licenses/license_utilities/114/machind/LicensingEndUserGuide.pdf](file://$REACTION_DIR/licenses/license_utilities/114/machind/LicensingEndUserGuide.pdf)

Also, it is possible to configure most UNIX/Linux machines to restart the license server automatically as part of the boot-up operations. We provide a script that can be used for this purpose; see [Appendix C](#) for more information.

3.5.3.1.4 Stopping the License Server

The syntax for this command is

```
manage_license.sh stop [license server location]
```

This action stops the license server. If you have never specified a location, the location provided at the time of installation is used. By default, this is `28850@<your hostname>`. If you have used the `manage_license.sh setpath` command, then the location you provided will be used unless you provide an explicit location.

You must be on the license server machine to stop the license server. Network clients are not permitted to perform this action. (We start the `lmgrd` daemon with the `-local` flag to prevent network clients from stopping the license server.)

3.5.3.1.5 Checking the License Status

The syntax for this command is:

```
check_license.sh [license server location]
```

This script performs the status checks described in [Section 3.5.3.1.1](#) (`manage_license.sh status`) and can be invoked directly or indirectly using `manage_license.sh`. This script accepts an optional command-line argument that is the license server location path.

3.5.3.1.6 Requesting a License

The syntax for this command is:

```
request_license.sh
```

This script obtains the computer-specific information needed to create a license file for use on the host where the script is run. This is described more fully in [Section 3.4.3](#).

4 Getting Help and Support

4.1 Frequently Asked Questions

Please look first for help at www.reactiondesign.com/help/open/help.html. In addition, Reaction Design provides a set of answers to Frequently Asked Questions (FAQs) that we have compiled through our interaction with customers. A list of FAQs is maintained in the **Customer Support > FAQs - Support Database** area of our web site (www.ReactionDesign.com).

4.2 Contacting Technical Support

Reaction Design is committed to the highest level of technical support. If the answer to your question is not found in the Frequently Asked Questions (FAQ) section, please email your question to support@ReactionDesign.com. You may also contact Reaction Design's Technical Support by Telephone: (858) 550-1920 or by Fax: (858) 550-1925.

For all support requests, please include the following information:

1. Your Reaction Design license number (listed in .out files we create; also displayed in the CHEMKIN interface log file)
2. The type of computer (PC, Linux, ...) and operating system version.
3. The version of Reaction Design software you are using.
4. Files that will help us troubleshoot your problem as described below.

- a. If you are contacting us regarding a CHEMKIN-PRO or CHEMKIN application or user interface problem, please provide us with a project archive file if you want us to review or reproduce your results. This file can be created from the user interface using the **Project > Archive** command. Please archive your input files; use your judgment on whether we also need to see the output files or can simply rerun your project to obtain them. Also, please provide any error message screenshots, etc., that will help us understand your problem.
- b. If you are contacting us regarding ENERGICO, please provide us with the text or screenprints of any error messages along with the session file (.ckses) if your problem is with the Zone Viewer. If your problem is with an ERN, then please archive the CHEMKIN-PRO project as described above. If we need your .cgns file to investigate the problem, we will contact you regarding FTP arrangements. A .cgns file is typically much too large to include as an email attachment. Please read the auto-reply acknowledgement email for more instructions on what diagnostic files to provide. Please send ENERGICO support requests to energico_support@reactiondesign.com.
- c. If you are contacting us regarding a CHEMKIN-CFD problem, please provide any input and chemistry files needed to reproduce the problem as appropriate.
- d. If you are contacting us regarding an installation or licensing problem, please provide us with ALL of the information listed in [Section 4.2.1](#). You will greatly speed up resolving this support issue by providing complete diagnostic information.

4.2.1 Diagnostic Information Requested for Resolving Licensing Issues

1. Program outputs, screen prints, etc., showing the error message(s) you are receiving.
2. Value of REACTION_LICENSE_FILE environment variable.
 - a. On UNIX, type **echo \$REACTION_LICENSE_FILE**.
 - b. On Windows, use **Run cmd.exe** and then type **SET REACTION_LICENSE_FILE**.
3. Are you running on the license server machine, or on a different computer? We need to know because trouble-shooting varies, based on this.
4. What operating system are you running? If Linux, what version of Linux and type of processor (x86-32 bit or x86-64-bit)
5. What Reaction Design product are you running? CHEMKIN-PRO or CHEMKIN (which version), FORTÉ, ENERGICO, CHEMKIN-CFD (which CFD product, which version)

-
6. If on the license server machine, also provide:
 - a. Reaction Design license file complete file path location
 - b. Copy of Reaction Design license file (provide as an attachment or inline in the email)
 - c. **debug.log** file -- located in the **licenses** directory or **license_utilities** directory of the Reaction Design installation



Note: This may be a *big* file; but if it is less than 5 MB please send the *whole* file. If it is too big to email, please stop and restart the license server, confirm your problem still exists, and send us the new debug.log file which will now be quite small.

- d. If requesting licensing help for CHEMKIN–CFD, please also provide the license file and daemon vendor log for any associated CFD product.

5 Contacting Reaction Design

Please check with the Reaction Design website for updated contact information for all our offices:: <http://www.reactiondesign.com/company/open/contact.html>

Main Office:

Reaction Design, Inc.
6440 Lusk Boulevard
Suite D-205
San Diego, CA 92121
(+1) 858 550-1920 (telephone)
(+1) 858 550-1925 (fax)
Sales Information: info@ReactionDesign.com (email)
Technical Support: support@ReactionDesign.com (email)
<http://www.ReactionDesign.com> (web site)

Japan Office:

Reaction Design Japan, KK
Level 7, Wakamatsu Building
3-3-6 Nihonbashi-Honcho, Chuo-ku
Tokyo 103-0023, Japan
(+81) 36 202 2898 (telephone)
(+81) 36 202 7676 (fax)
support-japan@ReactionDesign.com (email)

Europe Office:

Reaction Design Europe
(+44) 1993 775 029 (telephone)
info-europe@ReactionDesign.com (email)

CHEMKIN Distributor in Japan:

Ryoka Systems Inc.
Tokyo Dia Building
1-28-38, Shinkawa, Chuo-ku
Tokyo 104-0033, Japan
(+81) 3 3553 9206 (telephone)
(+81) 3 3553 9207 (fax)
support@rsi.co.jp (email)
<http://www.rsi.co.jp> (web site)

CHEMKIN Distributor in Korea:

Kyungwon Tech, Inc.
Rm 907, Byucksan Technopia
434-6 Sangdaewon, Jungwon
Seongnam, Gyeonggi
462-716, Korea
(+82) 31 706 2886 (telephone)
(+82) 31 706 2887 (fax)
software@mail.kw-tech.co.kr (email)
<http://www.kw-tech.co.kr> (web site)

CHEMKIN Distributor in China:

SinoFlow, Inc.
Room 421, No. B, Chengyuan Building
Xisanqi, Haidan District, P.O. 100096
Beijing, P.R. China
(+10) 51 280 068 (telephone)
(+10) 51 280 069 (fax)
info@sinoflow.com.cn (email)
<http://www.sinoflow.com.cn> (web site)

CHEMKIN Distributor in Taiwan:

CADMEN Taiwan Auto-Design Co.
10F., 635-2 Chung Hsin Rd. 5, San Chung,
Taipei Hsien, Taiwan
(+886) 2 29958040 (telephone)
(+886) 2 29957792 (fax)
info@cadmen.com (email)
<http://www.cadmen.com> (web site)

A License File Contents

Most Reaction Design license files are composed of 4 types of lines. The \ character at the end of a line signifies that a line is continuing on to the next line. All license file data lines start with a keyword. Our license files primarily use these keywords:

- SERVER line
- DAEMON line
- FEATURE line(s) / INCREMENT line(s)
- Comment lines (starting with #)

A.1 Server Line

```
SERVER myserver 123bc3434fda2 28850
```

The SERVER line specifies the hostname (or TCP/IP address) of the computer that is serving the license. In most cases, using the hostname is preferred, e.g., myserver. In obscure cases where the domain name service is not reliably available, you can use the TCP/IP address (e.g., 192.168.244.23) instead. The fields following the SERVER keyword are

- Hostname or TCP/IP Address
- Lmhostid (the unique hosted value reported by the Request_License tool)
(The license encryption strings use this value; it cannot be modified without invalidating the license.)
- PORT number, e.g., 28850

A.2 Daemon Line

```
DAEMON reaction /usr/home/joe/reaction/license/license_utilities/linux9/  
reaction PORT=28851
```

The DAEMON line specifies the name of a license daemon and the location of the reaction[.exe] daemon program. Reaction Design applications all use the reaction daemon. Other vendors use other daemons, such as FluentLM and cdlmd. The fields following the DAEMON keyword (or alternatively, the VENDOR keyword) are:

- Daemon name
- Full path to daemon program
- PORT=<portnumber>
- (optional) OPTIONS=<options-file-path>

A.3 Feature Lines / Increment Lines

```
FEATURE CHEMKIN reaction 2007.02 02-feb-2007 2 72F648240C39 \  
    VENDOR_STRING="LicNum: nnnn; Licensed to Customer  
Institution; \  
    Contact: Customer Name" \  
SIGN="0057 5401 7CE9 EC9D 0A6D D811 \  
    CB93 6900 BB0C B020 7FEE C93E 6667 CC7E 4A30"
```

The fields following the FEATURE keyword are as follows:

- Feature name - Name of the “key” that is checked out/in
- Daemon counting the key - All Reaction Design features are counted by the reaction daemon
- Version number - Controls which revisions of Reaction Design software are enabled by the license feature
- Expiration date - Last day the feature is usable
- Number of copies - Number of copies that can be simultaneously in use by different processes or users
- Short encryption key - Used by older Reaction Design versions
- Vendor string - This string lists the license number and contact details for the particular customer who has licensed the software
- Long encryption key - Used by more recent (May 2004 and later) versions of Reaction Design software

The word INCREMENT may be used instead of FEATURE. In this case, the number of copies specified is added to the number previously listed in a FEATURE line for the same feature name.

A.4 Comment Lines

```
# Reaction Design FLEXlm License file
```

Any line in the license file that is not one of the earlier 3 lines is a comment line. Our license files start comment lines with a # character; although a completely blank line is also acceptable.

B Windows XP Firewall Modifications

If you are using Windows XP Service Pack 2 or higher and you see this license error message:

FLEXlm error: -15,10. System Error: 10061 "WinSock: Connection refused"

You probably need to modify your firewall settings to allow access on the specific ports needed for the Reaction Design License Manager.

This applies to both the machine hosting the license manager (the "license server") and to any machine attempting to access the license (the "client"). This includes node-locked as well as floating licenses.

In the following example, we will assume your license file has specified ports 28850 and 28851 for the daemons. Recent licenses generated by Reaction Design include these port assignments.

B.1 Open the specified ports in your Windows XP SP2 Firewall

1. Go to **Control Panel > Windows Firewall**.
 - a. Click the Exceptions tab.
 - b. Click **Add Port**.
 - c. Type **Reaction Design license server port 1** in the name field.
 - d. Type **28850** in the port field.
 - e. Leave the radio button **TCP** selected and click **OK**.
2. Click **Add Port**.
 - a. Type **Reaction Design license server port 2** in the name field.

- b. Type **28851** in the port field.
 - c. Leave the radio button **TCP** selected and click **OK**.
3. Exit the Windows firewall interface by clicking **OK**.



If you are using a different firewall, such as Norton Internet Security, please refer to the firewall vendor's manual/help for instructions on how to unblock ports 28850 and 28851 for both incoming and outgoing TCP communication.

C Licensing as a Service

Installing licensing as a system service allows the license manager to be automatically restarted when the computer is restarted. This is the default approach we recommend for Windows-based license servers. Our Manage Reaction Design License tool provides this ability as a checkbox that is enabled by default. For Linux and UNIX installations, enabling this capability requires root access and making additions to system configuration files. We do NOT do this as part of our installation. Most Linux/UNIX system administrators prefer to make these kinds of changes themselves, rather than having software installers automate these changes.

C.1 Installing Licensing as a Service

C.1.1 Windows License Service

The Manage Reaction Design License tool updates the registry with the particular information required to define the Reaction Design license service as a valid service for Windows. You can start/stop/pause/resume this service just like any Windows service using the standard Windows Services control panel. Our tool is documented in [Section 2.5.2](#) of this manual; explaining the internals of what happens within the registry when a service is installed is beyond the scope of this manual. The specific registry keys for Windows XP environment are these:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Flexlm License
Manager\REACTION_DESIGN_FLEXLM_SERVICE]
"Lmgrd"="C:\\Program
Files\\Reaction\\licenses\\license_utilities\\lmgrd.exe"
"LMGRD_LOG_FILE"="C:\\Program Files\\Reaction\\licenses\\debug.log"
"License"="C:\\Program Files\\Reaction\\licenses\\chemkin.lic"
```

```
"cmdlineparams"=""  
"Service"="REACTION_DESIGN_FLEXLM_SERVICE"
```

C.1.2 Linux/UNIX License Service

The example below is specific to a Linux environment (Red Hat Enterprise 3 in our example) but applicable to any UNIX environment using chkconfig utilities. This can be adapted to other UNIX environments by any administrator who is generally familiar with the startup scripts in */etc/rc* or */etc/init.d* directory.

As part of our installation, we create a file in *license_utilities* named *reactionbootd* which is a Bourne shell script for use with the chkconfig utility. The script is commented and provides instructions on how to install it and the syntax for its use. Please use the Linux info or man utilities to obtain more information on chkconfig (or consult your favorite book or web site). The basic steps are these:

1. Place this file (reactionbootd) in */etc/init.d* directory (requires root privileges)
2. Activate automatic restart (for next reboot) by typing (as root)
`/sbin/chkconfig reactionbootd on`
3. Start licenses now by typing
`/etc/init.d/reactionbootd start`

You can still use the *manage_license.sh* tool to stop and start the license server even if the license server is automatically started at reboot by the chkconfig utility system.

Note that the *reactionbootd* script is generated with the license file name of *reaction.lic* specified in the script. Simply edit the script and change this to *chemkin.lic* if you prefer.

D Port@Host Method of License Server Location

D.1 Specifying License Server Location

There are two ways for our Reaction Design applications to find the license file that enables them, by port@host and/or by license file location.

1. Specify the port@host of the license server. This consists of listing the specific TCP/IP port number being used by Imgrd to listen for license requests. By default, the Reaction Design licenses specify port 28850. We chose this port because we believe no other application is likely to be using it. We specify this port on the SERVER line of the license files we generate:

```
SERVER servername 12a34b56cd66 28850
```

We have shifted to this approach in response to (1) the prevalence of firewall software that requires the explicit enabling of TCP/IP ports or explicit enabling of trusted applications (Imgrd and reaction on Linux/UNIX and Imgrd.exe and reaction.exe on Windows) and (2) the increasing use of our products within a networked, multi-client environment.

We recommend this approach for all client installations - those that are not running the license server. We also recommend this approach for Linux/Unix installations even if they are running the license server. (See [Section 3.5.3.1.](#))

2. Specify the license file location. This consists of specifying an environment variable that contains one or more file locations (individual file paths or directories). We continue to use this approach for Windows computers that are running the license server. This is because the Manage Reaction Design License tool combines the setting of this location with the starting/stopping of the license server.

Although client installations can use this approach, it requires that either (a) the license server's copy of the license is network-accessible or (b) the client has an identical copy of the license file. These requirements create points of failure that lead to more frequent problems in obtaining a license by a client computer.

D.2 Communicating the License Server Location

In both cases, the license file location is specified to Reaction Design applications using the `REACTION_LICENSE_FILE` environment variable. On Windows, the Manage Reaction Design License tool manages this variable. On Linux/UNIX, the `manage_license.sh` shell script updates a file containing this license location that is used by our product environment scripts.

You can inspect/confirm the value of `REACTION_LICENSE_FILE` by simply listing that variable within a terminal window.

On Linux/UNIX, type

```
echo $REACTION_LICENSE_FILE
```

On Windows, open a DOS shell and type

```
SET REACTION_LICENSE_FILE
```

You may have other FLEXnet/FLEXlm-enabled applications that instruct you to use `LM_LICENSE_FILE` as the environment variable. This will also work, but the makers of FLEXnet recommend using vendor-specific environment variables to avoid any possible conflict/corruption between different applications. We follow their recommendation. Since our license daemon's name is "reaction", we use `REACTION_LICENSE_FILE` to specify the license server location.

Starting the License Server

The steps required to start the license server (lmgrd process) are described elsewhere. The lmgrd process is the only program component that actually reads the license file. We specify the license file path to this process when starting the license server.

This is quite distinct from specifying the license server location - which is how an application can communicate with the license server.

E Combining Licenses from Reaction Design and CFD-Vendors

You can learn much more about license files with the FLEXnet manual, which you can access at:

Windows:

Start > All Programs > Reaction Design > License Tools > Supplemental FLEXlm Tools > User Manual and FAQ

UNIX:

[file://\\$REACTION_DIR/licenses/license_utilities/101/machind/index.html](file://$REACTION_DIR/licenses/license_utilities/101/machind/index.html).

Chapter 3 of its *End Users Guide* describes various approaches for managing license files from multiple vendors.

The general considerations are:

1. Make backup copies of the individual licenses and then merge them using your favorite text editor to copy/paste or otherwise combine them. Remove the duplicate SERVER lines so that only one SERVER line remains. See the example merged license shown below.
2. Explicitly specify the ports to be used by the lmgrd daemon (on the SERVER line) and by the reaction daemon. We suggest 28850 and 28851 for our standalone licenses, but you can use other ports specified by other vendors. If the other license provider does not specify a port for their vendor daemon, that is OK. (They may encounter firewall issues, but you will discover those prior to merging the licenses.)

3. Always use the most recent version of Imgrd daemon. Reaction Design is currently distributing Imgrd v 10.1. You can read the Imgrd version in the daemon log file. The Imgrd version used must be the same or higher than the version of any vendor daemon.
4. You can start the Imgrd license server using Reaction Design's Manage License or `manage_license.sh` utility or using the instructions provided by the other vendor, but be sure that you are the latest version of Imgrd.
 - a. On Windows, you can specify the location of Imgrd.exe when starting the license.
 - b. On Linux/UNIX, `manage_license.sh start` does not provide a way to specify an alternate location of Imgrd. If the version we provide is not the highest version in use, you can copy the more recent version to:


```
$REACTION_DIR/licenses/license_utilities/101/
<platform>/lmgrd
```

or you can start Imgrd by hand (`./lmgrd -c <lic file> -l <log file>`) or by using the instructions provided by the other license provider.
5. Specify the location of the license server to Reaction Design's products using **`manage_license.sh setpath port@host`** on Linux/UNIX or the Manage Reaction Design License utility on Windows.
6. Confirm the license is running using the `check_license` utility we provide in the *license_utilities* directory.



Note: Once you have confirmed that the license server is operational and that the license server location that you have specified is working, then test running the CHEMKIN-CFD application or other Reaction Design product. Trying to run CHEMKIN-CFD before completing these steps just complicates the troubleshooting; so please be patient and verify that the license is operational first.

E.1 Example of Merging License Files

Reaction Design License:

```
SERVER HQW011 00065b848c62 28850
USE_SERVER
DAEMON reaction "C:\Program
Files\reaction\licenses\license_utilities\reaction.exe" \
PORT=28851
```

```
FEATURE KINETICS_API reaction 2007.02 02-feb-2007 2 9826ED8FA44A \
  VENDOR_STRING="LicNum: 9969; Licensed to Reaction Design; \
  Contact: Luthor Redbone" SIGN="0080 DF7F 1A5A 22C7 FA53 7E42 \
  E7D2 0700 BF01 FE75 AE1E 5D9F 901B 9246 AA9A"
```

Another License:

```
SERVER HQW011 00065b848c62 8241
VENDOR other "C:\Program Files\other-vendor\bin\other.exe"
FEATURE Other_Feature other 1.000 28-feb-2007 1 A0A02020DE044AC8E264 \
  VENDOR_STRING="Other Inc" ISSUED=08-sep-2005 NOTICE="License \
  issued to Reaction Design" START=08-sep-2005
  SIGN="0080 DF7F 1A5A 22C7 FA53 7E42 \
  E7D2 0700 BF01 FE75 AE1E 5D9F 901B 9246 AA9A"
```

Merged License:

```
SERVER HQW011 00065b848c62 8241
USE_SERVER
VENDOR other "C:\Program Files\other-vendor\bin\other.exe"
DAEMON reaction "C:\Program
Files\reaction\licenses\license_utilities\reaction.exe" \
  PORT=28851
FEATURE Other_Feature other 1.000 28-feb-2007 1 A0A02020DE044AC8E264 \
  VENDOR_STRING="Other Inc" ISSUED=08-sep-2005 NOTICE="License \
  issued to Organization-Name" START=08-sep-2005 \
  SIGN="0080 DF7F 1A5A 22C7 FA53 7E42 \
  E7D2 0700 BF01 FE75 AE1E 5D9F 901B 9246 AA9A"
FEATURE KINETICS_API reaction 2007.02 02-feb-2007 2 9826ED8FA44A \
  VENDOR_STRING="LicNum: 9969; Licensed to Reaction Design; \
  Contact: Luthor Redbone" SIGN="0080 DF7F 1A5A 22C7 FA53 7E42 \
  E7D2 0700 BF01 FE75 AE1E 5D9F 901B 9246 AA9A"
```

In the merged license, we have kept the port used by the other vendor, 8241. The other vendor does not specify a port for his VENDOR daemon. This is OK if the license is working prior to being merged.

You would then specify the license server location as 8241@HQW011. You should use our tools to specify the location to our applications and also use the other vendor's tools (however they suggest) to specify the location to their applications. Ultimately, our applications will rely on REACTION_LICENSE_FILE environment variable to obtain this location. Our tools update the resources used to set this environment variable.

F Troubleshooting Client License Connections

Any client machine wanting to connect to the license server must be able to (1) resolve the server's name and (2) have TCP/IP communication with the server, which may require (3) unblocking ports in firewalls on server and client machines. Once any issues with those requirements are resolved, then the network client must (4) specify the location of the license server so that CHEMKIN can find it.

F.1 Item 1: Resolving Server's Name (in Windows Environment)

The license file typically contains the name of the server, which requires that the client's DNS resolve the computer name into an IP address. You can test whether this is succeeding by opening a DOS window and typing the following:

```
nslookup <server-name>
```

where <server-name> is whatever the name of the license server is. When it succeeds, it will tell you the IP address of the <server-name> machine. If it fails, then your client will not be able to communicate with the license server. At that point, you can either put the <server-name> to IP mapping into your hosts file (on the local client machine, typically in C:\Windows\System32\Drivers\Etc\hosts or C:\WINNT\System32\Drivers\Etc\hosts) or you can edit the license file and specify the IP address of the license server instead of the server name.

Here's an example on our network of looking for a computer named HQTS02 (which exists) and a computer named NOGOOD (which is not on our network). The machine hqdc01 is our DNS server which provides the name-to-IP-address conversion service.

```
++++> nslookup HQTS02
Server: hqdc01.hq.reactiondesign.com
Address: 192.168.200.3
Name: HQTS02.hq.reactiondesign.com
Address: 192.168.200.10

++++> nslookup NOGOOD
Server: hqdc01.hq.reactiondesign.com
Address: 192.168.200.3
*** hqdc01.hq.reactiondesign.com can't find NOGOOD: Non-existent domain
```

F.2 Item 2: Testing TCP/IP Communication from Client to License Server

Once you verify you can convert <server-name> to IP-address, or once you have learned the IP-address, you can typically (unless firewall is blocking, see item 3) use the ping command to test whether the client and license server can communicate. If DNS is resolving the name, you can do this as follows:

```
++++> ping HQTS02
Pinging HQTS02.hq.reactiondesign.com [192.168.200.10] with 32 bytes of data:
Reply from 192.168.200.10: bytes=32 time<10ms TTL=128
Reply from 192.168.200.10: bytes=32 time<10ms TTL=128
Reply from 192.168.200.10: bytes=32 time<10ms TTL=128
Reply from 192.168.200.10: bytes=32 time<10ms TTL=128
Ping statistics for 192.168.200.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

If DNS is not resolving, you can directly use the IP address, like this:

```
+++++> ping 192.168.200.10
Pinging 192.168.200.10 with 32 bytes of data:
Reply from 192.168.200.10: bytes=32 time<10ms TTL=128
Reply from 192.168.200.10: bytes=32 time<10ms TTL=128
Reply from 192.168.200.10: bytes=32 time<10ms TTL=128
Reply from 192.168.200.10: bytes=32 time<10ms TTL=128
Ping statistics for 192.168.200.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

F.3 Item 3: Unblocking Firewall(s) on Client and License Server

If you have a firewall running (this is the default condition on any Windows operating system, starting with Windows XP SP2) on any client machine trying to connect to the license server, you will need to modify the firewall on that client machine. (If the license server is running a firewall, you also would need to make the change on the license server.) Please refer to [Appendix B, Windows XP Firewall Modifications](#).

F.4 Item 4: Specifying Location of License Server

The client computer can specify the location of the license server in a few different methods:

1. A copy of the license file in the default location,
C:\Program Files\reaction\licenses\chemkin.lic
2. Environment variable, REACTION_LICENSE_FILE, with value port@<license-server>, where port is whatever number is specified on the SERVER line of the license file. (Our default is 28850; but this can be changed.)

If you are still having problems connecting the client to the license server after working through items 1-3 above, please try using method 2 above to specify the location of the license service. We have found this to be the most direct and trouble-free way to connect client with license service.

Effective with the CHEMKIN 4.0.2 release (April 2005), the Manage CHEMKIN License tool will accept the [port@host](#) format for specifying the license file location. Note that this form is not allowed on the license server itself, only with client machines.

Alternatively, you can directly edit the environment variable definition of REACTION_LICENSE_FILE. The environment variable definitions are accessed as part of the Properties tabs associated with the **My Computer** icon. Find the **My Computer** icon on either the desktop or within the **Start** menu options and right-click **My Computer**. Select **Properties**. Then on Windows XP and 2003, select the Advanced tab. On Windows Vista, click on the left panel (**Tasks**) line saying **Advanced System Settings**. Next, look for an **Environment Variables** button to click. You can add/edit the REACTION_LICENSE_FILE definition in either the System variables section (preferred, if you have Administrative rights on the computer) or the user section.

G Mounting a Reaction Design UNIX/Linux Distribution CD-ROM

Insert the Reaction Design distribution CD-ROM into a mounted CD-ROM drive. You must then mount the disk as a file system on your computer. For most systems you must be **root** to mount a CD-ROM. Specific instructions for mounting the CD-ROM on UNIX/Linux system follow.

Mount the CD-ROM by entering:

```
mount -t iso9660 <CD-ROM-device> /cdrom
```

replacing **<CD-ROM-device>** with the actual name of the CD-ROM drive on your system. A typical name is **/dev/cdrom**.

G.1 Unmounting the CD-ROM

The command to unmount the CD-ROM for most UNIX systems is:

```
umount /cdrom
```


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